

## **I. Objectives**

1. Work as a member of a team in a coordinated research effort.
2. Use your creativity and critical thinking skills in organizing, displaying, and evaluating your group's materials.
3. Share and communicate what you have learned with others both in and out of class.
4. Create a professional and informative poster.

## **II. Introduction**

Comparative planetology enables us to study planets through comparison and contrast, using Earth as the basis of comparison. Studying the geologic processes on Earth helps us reconstruct Earth's history and provides insight into geologic processes occurring on the surfaces and interiors of Mercury, Venus, the Moon, and Mars, as well as some Jovian planet moons. The stages in the development of the terrestrial planets include impact cratering, volcanism, plate tectonics, and erosion.

We also need to understand geologic time and terminology and become familiar with natural geologic processes. The effects that we, as humans, have on those processes and on our environment can be both beneficial and harmful depending on the situation.

## **III. Theory**

There are many processes that have shaped the interiors and exteriors of the terrestrial planets. These processes include differentiation, desertification, glaciation, plate tectonics, cratering, weathering, global warming, volcanism and erosion. Some of these processes have occurred on all of the terrestrial planets, while other processes are evident on only some of them due to physical characteristics, such as size, gravity, temperature, composition, atmosphere and distance from the Sun.

**IV. Prelab Definitions**

1. comparative planetology
2. potential energy
3. kinetic energy
4. uniformitarianism
5. catastrophism
6. conduction
7. convection
8. radiation
9. geological processes
10. impact cratering
11. volcanism
12. plate tectonics
13. erosion
14. differentiation
15. desertification

16. glaciation
17. weathering
18. global warming
19. formation properties
20. geological controlling factors
21. surface gravity
22. internal temperature
23. surface temperature
24. atmosphere

**V. Lab Procedure**

1. You and your team members will create a poster on one of the following comparative planetology-related topics: geological time, terrestrial planet atmospheres, terrestrial planet interiors, cratering, earthquakes, erosion, plate tectonics, volcanism, deserts, glaciers, climatology, petrology, mineralogy, oceanography, hydrology, or paleontology.
2. You will locate materials related to your topic, which may include historical descriptions, maps, drawings, photographs, and written information about the topic, or other materials.
3. You **may** use whatever sources you like but you must keep track of the sources for everything that you obtained from the Internet, magazines, books, etc. and information about that source must be included when you place the material on the poster.
4. You **may not** simply copy and place materials located from the sources above. You will need to coordinate your materials with the other members of your team, and remove materials that are not relevant. **All text must be typed.**
5. Everyone in your team will receive the same grade (unless a team member doesn't cooperate and participate). A maximum of 15 points (of this lab) is available for your completed poster, which must be done by the date indicated on the syllabus.
6. Your grade will be based on:
  - a. organization: are the materials you selected well organized on the poster?
  - b. research: were your research efforts adequate and appropriate in locating a wide variety materials listed in 2. above?
  - c. clarity: did you select materials that can be understood by others both in and out of the class?
  - d. conciseness: did you only include materials that are relevant to items listed in 2. above?
  - e. professionalism: does your poster have a professional appearance? is it interesting and informative?

